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ABSTRACT

As part of a larger research project on workplace learning, a study examined learning at work as it is experienced among product planners in Finland. The study focused on three questions: (1) What kind of experience do employees interpret as learning? (2) What kind of meanings do employees give their action and learning individually and together? and (3) What kind of meanings do employees give to the use of information technology at work and in learning? Preliminary results, stemming from the first eight interviews conducted in one high-technology enterprise in central Finland, suggest four challenging situations that involve learning: (1) implementing large projects as a whole; (2) arranging one's duties in the workplace; (3) dealing with new and challenging situations and assuming responsibility for new duties; and (4) working and communicating with different people and groups of people. Four themes about learning emerged: (1) acquisition of competence and skills through experience and feedback; (2) learning as cooperation; (3) learning from experience and mistakes; and (4) acquiring a "technical way of thinking." As the study progresses, observations and interviews will be conducted in other enterprises and compared with this preliminary data. (Contains 34 references.) (KC)

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SEARCHING FOR THE MEANINGS OF LEARNING AT WORK: CASES OF PRODUCT PLANNERS

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Searching for the meanings of learning at work: cases of Product Planners

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1) Introduction:

This working paper examines learning at work as it is experienced among product planners. The paper focuses on three questions of 1) what are product planners' conceptions of their work and learning experiences in different situations in a work context, 2) why are the learning processes and the learning situations examined through ethnographic methods and 3) what are some preliminary remarks of this ethnographic analysis. The study presented here is the first part of a larger research project which aims to describe and understand the phenomenon and the processes of workplace learning as it is perceived by planners themselves. Further, it will describe the meanings that are given to learning. Individual and collective meanings will be studied. An analysis of learning situations is based on observations and interviews, and an analysis of the meanings that are given to these learning experiences on every day work in interviews. The specific aim of the first part of the research project is to examine the learning situations and processes described by planners. The preliminary results presented in this working paper are grounded on first 8 interviews conducted in one high-tech enterprise in central Finland.

In recent years the fundamental importance of the workplace as a site for learning has been reasserted, and it has long been quite evident that most of the learning in the workplaces is informal (see Benson, 1997; Watkins & Marsick, 1992). Learning is seen as a natural part of every day work and the work itself is seen as a rich source of learning (McGill & Slocum, 1994; Darmon and co., 1998). Studies in the US (Darrah, 1995) and in Japan (Koike & Inoki, 1990) have focussed on examinations of the processes whereby individuals acquire skills in the course of their every day work activities. On the basis of these experiences, high levels of skill formation can only be achieved through work-based learning, especially through learning on-the-job.

The ways of workplace learning have been examined by a few larger research efforts. These studies, conducted by interviews, have tried to answer to the questions such as, what is being learnt at work, how is learning taking place and what kind of factors affect the amount and direction of learning in the workplace (Eraut and co., 1998; Gerber and co., 1995; Gerber, 1998). The findings from these studies suggest that much learning at work derive its purpose and direction from the goals of the work itself. It arouses naturally out of demands and challenges of work and out of social interactions in the workplace with colleagues, clients and customers. Learning at work sometimes involves undertaking some formal training, but almost always requires learning from experience and from other people at work (see also Boud & Miller, 1996).

In more detail, learning at work takes place by making mistakes and learning not to repeat the mistake, through self-education on and off the job, through participating one's personal values, by applying theory and practising skills, through solving problems, through interacting with others, through open lateral planning, by being an advocate for colleagues, through offering leadership to others, through formal training and through practising quality assurance (Gerber, 1998).

One problem in the discussion concerning the study of learning at work is that it is a very complex phenomenon, which is so far lacking systematic, sensibly conceptualised and comprehensive theorisation. It suffers from three kinds of problems: 1) there has been a diversity of work in various parallel but non-overlapping fields of study and practice, 2) there has been a proliferation of different terminology to refer the same basic concepts and 3) the term itself can mean very different things depending on the ideological and organisational perspective of the writer or speaker (Candy & Mattehews, 1998). In sum, workplace learning has been studied from various points of views:

1. The workplace as a site for formally accredited learning
2. The workplace as a site for complex technical interactions and problem solving
3. The workplace as a site for sharing and creating knowledge
4. The workplace as a part of knowledge society
5. The workplace as an organic entity, capable of learning and adaptation in its own right (Candy & Matthews, 1998).

Accordingly, there seems to be a strong need for research in the area of nature of learning in the workplace from perspectives as how learning occurs, the various ways in which it can be organised and controlled, how it can be made to more effectively meet the needs of and benefit more people, the workplace as environment for learning (Boud and co., 1998; Lähteenmäki and co., 1999). Especially there is a need to examine learning at work as it is seen by the actors themselves (see e.g. Garrick, 1999). Examining learning from the workers' point of view requires more interpretative approaches, process oriented methods, detailed work descriptions in natural settings, such as case studies and workplace ethnographies (Eraut, 1998; Henriksson, 1999; Karakowsky & McBey, 1999; Sandberg, 1994; Torraco, 1999). Also discursive approaches for qualitative and narrative forms of research have to be developed further for use in specific contexts (Bouwen, 1998).

In sum, on the basis of recent studies the interest should be now focussed on the working activities and practices as such and examine these practises as learning. The point of departure should be the meanings given to the activity and practise by the workers themselves and interpret learning in different organisational contexts through these meanings. Also, the interaction of workplaces during which the meaning-making and learning processes takes place, should be examined.

2) Conceptual starting points: Learning at work as collective action and negotiation and construction of meanings

The starting point of this research is to view different practices and situations of work through which learning is assumed to take place. By acting together, solving problems, making and negotiating meanings is learning in it. Taking the social constructionist perspective as the point of departure, learning is making the world in which we are living and making meanings and participating in every day social action, meaningfully. Learning is ubiquitous in ongoing activity, though often unrecognised as such. Lave (1993) has come to the conclusion that there is no such thing as learning sui generis, but only changing participation in the culturally designed setting of everyday life. Or, to put it the other way around, participation in everyday life may be thought as a

process of changing understanding in practice, that is, as learning (see also Lave & Wenger, 1991). There is no need to isolate knowledge from practice; instead there is a need to develop a view of learning as social construction, putting knowledge back into the contexts in which it has meaning. Workplace learning is best understood, then, in terms of communities being formed or joined and personal identities being changed. The central issue in learning at work is becoming a practitioner not learning about practice (Brown & Duguid, 1991).

Currently situated and negotiated nature of workplace learning is widely accepted (Lave & Wenger, 1991; Wenger, 1998) and the distinction between learning and working has significantly eroded in workplaces. Skilled performance in the work would not develop if workers had not benefit of learning in the context of their work. Competence cannot be separated from the context in which the performance is expected to take place (Brown & Duguid, 1991; Orr, 1996; Sandberg, 2000; Torraco, 1999). Accordingly, for instance in an organisational culture, the work itself and the role of colleagues may determine what is learnt and is possible to learn at work (Karakowsky & McBey, 1999). Further, Garrick (1999), in his study of HR developers' informal learning, has noticed that local and context-bounded power relationships form the informal learning of workplaces. Learning seemed to be constructed discursively, through work-based communication and symbolic patterns of behaviour. It was subjected to the discourses circulating about the primary purpose of the job: the actual work. The notion of situated learning and the critical role of emotion in it labelled informal learning according to his study.

Research on learning and the development of expertise has followed two major pathways, which Sfard (1998) has named as an acquisition metaphor and a participation metaphor. The former analyses learning as knowledge acquisition while the latter emphasises that learning is a process of becoming a member of a certain community and becoming able to communicate and participate within this community. In the present study learning is approached more as a process of social participation than an acquisition of knowledge not to ignore the latter however. Etienne Wenger (1998) states that unofficial communities of practice reach expertise and competence. These communities of practice are usually informal and pervasive and this is the reason why they rarely come into explicit focus, but for the same reasons they are quite familiar (like family, group of workers etc.). The community of practice is described by three dimensions of relation by which practice is a source of coherence of the community: 1) a joint enterprise or a project of joint responsibility, 2) mutual engagement, that is, doing things together and 3) a shared repertoire. Over time, the joint pursuit of an enterprise creates resources for negotiating meaning. The repertoire of a community of practice includes routines, words, tools, and ways of doing things, stories, genres, actions or concepts that community has produced or adopted in the course of its existence, and which has become part of its practice. Communities of practice are prescribed by the duality of participation (membership and interacting) and reification (instruments, documents, forms and points of focus) which determine, on the other hand, the interaction of the world and the experience of the action in the world and, on the other hand, continuous negotiations of meanings produced by the culture. Wenger also considers learning as a process of changing identity. Construction of the identity is a process in which we negotiate together meanings of the experiences from participation of communities of practice. Thus, our identity is continuously determined in relation to our community.

Consequently, the concept of meaning should be taken under closer look. Meanings in this study are understood as experiences, which are being interpreted all the time by us. Meanings are not properties of people, instead people can give meanings to their experience. As Jarvis (1992) puts it:

> "Learning is about the continuing process of making sense of every day experience - and experience happens at the intersection of conscious human life with time, space, society and relationship. Learning is therefore, a process of giving meaning to, or seeking to understand, life experience."

The processes of meaning making include the following generalisations from different writers' by Merriam & Heuer (1996): 1) Experience in and of itself does not have meaning. The person must assign meaning to the experience. 2) Individuals bring to their experiences an accumulation of past experience and knowledge; therefore, individuals' meaning of the same event can be dramatically different. 3) Meanings are socially constructed and context-dependent and 4) our need to make meaning of our experience is fundamentally human. Wenger (1998) has also seen meanings as a part of every day life. Meanings are not as it sits lock up in dictionaries. It is neither a question of relation between a sign and a reference. Neither is it on meaning as a grand question – on the meaning of life as a philosophical issue. Instead: "Practice is a meaning as an experience of every day life. It is a way of talking about our changing ability – individually or collectively – to experience our life and a world as meaningful. In this sense, living is a constant process of negotiation of meaning."

3) Research task and methodology

The purpose of the present study is to examine product planners' learning in the work context. In addition, this study describes various meanings, which are given to learning experiences and different individual and collective learning situations. Further, the role of information technology and especially its meaning from the learning's point of view has risen as one interesting theme and is further explored. The engineers of this field are studied because of growing demands of the information technology used as a tool at the planning work. Information technology seems to determine more and more planners' work and that is why also the meanings given to the learning of use of information technology will be examined.

The following research questions will be studied in the present study:

1. What kind of experience do employees interpret as learning?
2. What kind of meanings do employees give their action and learning individually and together?
3. What kind of meanings do employees give to the use of information technology at work and in learning?

This working paper concentrates on the first research question. The sub questions are as follows:

- What kind of conceptions of work and learning do employees present?
- What kind of difficult and challenging situations can be found at work, how is learning taking place in these situations?
- What kind of themes does emerge from the product planners' interviews about learning in the workplace?

The empirical data is based on observations and interviews with product planners (n = 18-20) from two high tech enterprises in central Finland. The observations and interviews (n = 8) considered in this presentation took place during May and June in 2000. The data from the other enterprise will be collected in October and November 2000.

All the interviewees were men and two of them were more closely observed in their every day work at one of the enterprises. The age of participants ranged from late 20s to late 50s. Six of them had an engineer education and two of them had a technician background, all of working under the job title of a development engineer. Three of the participants had more than 20 years of work experience at the enterprise in which they were working currently, and at least 10 years of planning experience. Two of the interviewed were superiors (team leaders) having at least 7 years of experience in planning. The rest of the participants had 1-3 years of planning experience and only a short work experience at this enterprise. This kind of "novice-expert" –setting, which was not intentionally created at the beginning of the study, offers a possibility to compare planners' experiences of learning on later stages of the study.

The observations took place at the room of two younger planners and lasted for 5 weeks. Through ethnographic observations it was possible for me to make notions and notes of designers' work and different working situations. The primary aim of observations was to describe what happens in setting and how people involved saw their actions and those of others, and the contexts in which the action took place (see Hammersley & Atkinson, 1995). By listening and walking around I created, as a researcher, an appreciation for the inquiry and a good relationship with the workers. I tried to create a good atmosphere between me and the planners behaving like any worker in the community from the beginning of the observation period. We usually talked about current news or music tastes for instance. After five weeks observations I was treated as one of the workers chatting at coffee pause. During the observation period also "unofficial" discussions about job took place. These discussions or "worktalk", as I have named it, concerned the issues, which the observed wanted to discuss about. Consequently, these "worktalk"discussions regarded items of meaningful experiences for the planners.

The interviews, conducted after observations, lasted 1 ½ to 2 ½ hours including several sections of items or themes concerning the job and work performance, competencies needed at planning work, challenging situations at work, organisational culture and learning at work. Not all the themes were considered in all interviews, but every interview took its own direction. The purpose of the interviews was to understand peoples' action by getting information about the meanings that guide the action in the setting and in the context of their work. Due to the warm atmosphere created during the observation period I assume that the interviewees ran the risk of discussing with me more honestly than without staying in the setting at all. This is because I was familiar to them and they supposed me to know at least something about their job. The common interpretative space was created before and even new interpretations were possible to be made in interviews. In this study the role of observations is to describe the setting, the context of work and situations in which learning is assumed to occur. By interpreting the action together with interviewees, also meanings given to the learning can be described. Interviews gave me a possibility to deepen and examine the interpretations I have made during the observation period. The analysis of interviews presented in this paper are very preliminary and are based only on half part of interviews and will be later deepened adapting ethnographic and phenomenographic analysis.

4) Preliminary results and tentative remarks from the interviews

Observations and interviews concerning this paper were conducted in GWS Systems Oy in central Finland. GWS Systems Oy is an international supplier of Industrial Workstations and Flexible Production Systems. The company has two business areas; industrial Workstations, GWS Workshop industrial furnishings and Storage Systems. The amount of employees is 300, of which 33 abroad. Products are manufactured at the GWS Oy's production plants in Jyväskylä and Vaajakoski, Finland. The Workstations are specially designed for electronic and telecommunication industries as well as light assembly industries. The main System GWS products are worktables, adjustable tables, production stands, adjustable frames, trolleys, drawer units, chairs flow-through shelving and Manual Transfer System (MTS).

The group of workers, which is examined in this paper, are working as product planners in the team of product development and planning. Specially they are planning and producing adjustable products for customers' needs. Every product is planned on the bases of customers' requirements and is thus special product for the planners and for the production. Typical for these "Special product planners" is unexpected and new challenges in the work because of customers' special needs. Special products are almost every time a little different from the ones which have been made before, thus, there is necessarily no help of former experience. Planners are facing very different kind of problems and are demanded to find the best possible solutions for customer's needs from case to case.

The work of planners consists of many different working tasks and provides competencies from various areas. They have to face wishes, expectations and demands from different directions. First, before beginning of the planning, a planner has to know the customer's needs conditions and context in which the product will be used. In addition, it is necessary for a planner to know precisely what kind of products is possible to produce with the help of machines on the production floor. Planners' position as if in the middle of assembly line and salesmen, through who customers' needs will be found out, is challenging and demanding and provides continuous interaction with these two group of people. Production floor workers and salesmen are working physical near planners, accordingly, every day negotiations and communication is possible.

Working tasks which planners are responsible for differ a little from one planner to another. Firstly, some of the older planners concentrate on planning of all kinds of products leaving the fixing of prices, calculation of offers and putting under construction to other planners. They have large experience and understanding of product selection from years behind. Secondly, some of them are responsible for the whole group of product as a whole. To control the whole production process of one specific product includes making offers, preplanning, preparing pictures for offers, calculating offers, creating new names for products to the production control system, product planning, production controlling, buying materials, subcontracting, composition and sending the products. Thirdly, in addition to the tasks described below some of the planners have more duties as superiors. Despite of various responsibilities, understanding the processes of production is required from all of them. Both customers' needs and the possibilities of assembly line as the point of departure they try to design a product suited to its purpose.

Accordingly, interest is focused on the question what are difficult and challenging situations in planning work and how learning is taking place in these situations. What kind of themes emerges from interviews concerning learning and learning situations? The themes presented next are preliminary impressions from interviews.

Challenging situations

Four various themes describe challenging situations and learning in these situations in interviews. *The first* of these themes focuses on **how to implement large sales projects as a whole.** The ultimate purpose of a planner's work is to satisfy the scheduled requirements of the client. Planners manage these projects with the help of former experience which helps in seeing both what is important to take into consideration in different situations and how to handle different kind of situations with different kind of people in solving problems connected to the projects with clients. The meaningfulness of work arises out of new challenges and everyday learning experiences. *The second* theme deals **with an arrangement of one's duties in organisation**. Is characterised in sentence "getting things done in time". Working every day and learning from working is challenging but is perceived "only a job", however. Learning is not necessarily taking place through "big experiences" from various every day situations but is rather perceived as accumulation of experiences and competencies. The accumulation of experiences makes it possible to find better solutions. Every product is new and it has to be negotiated with client from case to case. Thus, every new product is always a new learning experience. *The third* theme **arises out of new and challenging situations and assuming responsibility for new duties,** for instance the construction of organisation wide quality system or information system. These kinds of duties have learnt by experimenting and doing things step by step in the long run individually and in teams. *The fourth* **theme focuses on working and communicating with different people (e.g. clients, colleagues, superiors) and groups of people.** The planners experienced various demands expressed by different groups of people very demanding. Planners' position between salesmen, production and clients is sometimes experienced discouraging because of the negative feedback coming from various directions. However, no specific person was named as a source of problems. Instead, the best way to cope with difficult situations is to get to know different people and learn to know how to deal with them. This needs time and diplomacy as one of the interviewees put it.

How is learning taking place?

Four various themes emerged in interviews about learning in the workplace. *The first* theme refers to **acquisition of competence and skills through experience and feedback from colleagues and clients.** Without having a hint of success or failure of the product and its suitability to its assumed context learning and professional development is difficult, even impossible. The more it is possible to implement and plan different products, the more it is possible to understand and presume clients' needs and demands. As one of the interviewee put it: *"...the most important is that you could ask the right questions from the client"*... Especially the feedback from clients is valuable but usually it is not possible to get it enough. Sometimes even the planner himself is very unsure about the suitability of the product and only after months he may hear some feedback from the client or is able to see the product he has planned in its actual conditions. This process of searching the best possible solution and the best possible product is not always pleasurable. It can also be frustrating to continuously negotiate and check the client's point of view. Especially experienced planners felt this way:

> *"...No solved problems of the clients exists...but when you ask different things from client time after time and check that what is absolutely necessary and what is not so necessary property of the product, usually it is possible to find some kind of compromise...Also we have kinds of projects which have lasted for months and still continue...with those projects also the motivation may decrease...it feels as if you*

have strength to go on with it at all...as if start from the beginning again and again..."

The second theme deals with **learning as co-operation.** All the interviewees emphasise the importance of collegial feedback and learning from other people at work. Sometimes it seems to rise even the most important aspect of work activities in interviews. Communication and co-operation is seen as a means of running every day working activities. Through every day communication the technical know-how and competence is mediated from experienced workers to novices, but also collegial advice is needed in everyday practices and problem solving. To manage and develop as a planner, it is essential to have courage to ask questions and be anxious to know new things. Without this courage and anxiousness learning and coping with new people and new practices will be difficult for novice planners. The experienced workers are willing to help the novices in new and problematic situations

"...It is very pleasant when you have a possibility to ask that 'what do you think of this'...that you can get support or sometimes an honest opinion...and then we together try to look at it, how it should be made...When we are working at the same room it is possible to yell to the other that 'wake up...are you sleeping or what...I need some advice...how would you solve this'...and abuse when our own things are bad...it relieves..."

The third theme can be described **as learning from experience and learning from mistakes**. Due to demanding and specific nature of planning work learning is mostly perceived as learning by doing the actual job. To make mistakes and getting feedback from those mistakes helps noticing the decisive points in planning work and helps avoiding the same mistakes again. The feedback of any kind is easy to remember.

".... Well...development is taking place mostly by...getting new experiences all the time...how would I put it...let's say it this way, when you are planning a totally new product...the first object of...that this is our new product now...we are trying to sell this and it should be used this way...and for this kind of use. And before a possibility to experiment the new product, you only have a fragile impression of how it should work in its real context...but you are quite sure it will work. Then you sell the first one (of this new product) somewhere and the product will be sent to its users who sits on assembly line 8 hours a day...and it is used in three shifts, altogether over 20 hours a day...Then they (users) will have some experiences of what is working and what is not. Then the client contacts the salesman and tells that the product is working just fine but some changes should be made. The salesman contact me and then I realise that....well, well...the context is like this...there are various kinds of machines around the user or the user is taller or shorter than I have imagined or different kind of things should be taken into account. Next time you are doing the same kind of product again you know what to ask from the client. Then you have better chances to ask what is needed to ask. This way you can get experiences..."

Also the emotions of experiences seems to make learning very effective. Firstly, negative feedback is avoided because it is unpleasant. Secondly, the fluency of work is accepted, that is, if you have been too careless you probably will have to face your mistakes sooner or later and this causes unnecessary troubles. Thirdly, the annoyance caused to colleagues or employers is avoided by trying to attend one's own part of the practice as well as possible. Fourthly, concern of clients and employers contentment and desire to do "right things in the right way"

The fourth theme deals **with the acquisition of "technical way of thinking"**. The work of planners provides competencies of various areas but one of the most important sides of this competence is technical way of thinking. When asked about the content of this way of thinking clear answers seem difficult to get. It seems to be even as large as culturally constructed way of life, which is obtained from different places and situations of life and is continuously increased by visiting for instance exhibitions and clients. It includes an interest in technical equipment and technical solutions coming from leisure time hobbies, education and work. Specially in planning work, where the wide range of competencies is needed, this way of thinking seems to have a special importance. Perhaps this is the reason why all the planners of this group also have some former experience from the production floor or customer services.

> *"...There must be some points of departures there... the directions from to see (the job)...you must think about what are the requirements of planning a new product, do we have machines needed, is it reasonable to do it this way or...If you have, on the other hand, for instance economical education or background you don't think it primarily from the production or from the client's point of view, instead you think that 'sure we can do this kind of thing and sell it without thinking production and planning any further...Sure you can learn any kind of job in the long run but technical education and interest in techniques helps a lot."*

In addition, the theme of using and learning information technology by younger and older planners and differences between these two groups of workers has risen to one of the interesting themes. This theme will be more closely examined in future papers and articles.

5) Conclusions and directions for the future efforts

The aim of this presentation as one part of the larger research effort is not to try to describe the processes of learning yet, but to describe challenging learning situations of every day work perceived by planners, and to shape preliminary themes of learning at work. To sum up so far, it seems that for some interviewees learning in the workplace means challenging situations and interesting experiences, for the other interviewees learning means accumulating and improving one's competencies from the every day job by doing. On the basis of interviews it can be noted that processes of learning are difficult to reach for the interviewed. However, it might be concluded on basis of preliminary impressions from the interviews, that learning is not necessarily located in certain situations of every day work. Instead, it is seen more like accumulation of competencies needed at work and everyday co-operation in which the learning processes are embedded. Also Lavikka (2000) has concluded in her study of production floor workers in Finland, that changing competencies seemed to be constructed by processes of achievement of goals at individual, group and organisational level. The competencies of different groups of people in the workplace are developed at the same time as every day problems and challenging situations are to be solved. Accordingly, on the basis of the interviews, this every day learning is difficult to describe when learning processes are at hand. Rather, due to the accumulative nature of learning, it may be possible to reach and evaluate the processes and situations of learning after a course of time.

Osterlund's (1996) observational data of salespeople's learning at work could not support the assumption that salespeople memorise or internalise a number of concepts, rules and problem-solving models which later shape their work practices and ways of perceiving and conceptualising the sales processes. Rather, the sales representatives he observed learned to direct elaborate and

adjust their participation in multiple contexts. Accordingly, newcomers learned to weight, evaluate and direct their actions with and against other participants in different contexts. Also he calls for seeing learning as embedded in socially situated structures of ongoing practise and across the contexts of practises. Likewise, the preliminary results of the present study suggest that learning at work occur in participation to every day practices of work in a community of practice. However, the interviewees described their learning also as accumulation of experiences and competencies at individual level. Thus, it seems that the metaphors of learning as acquisition of knowledge and as participation within a community of practise are to be connected. As far as I can see it then, the most important question is, how individual knowing and competence is possible to harness to the use of a group or a community as a whole

Since these results presented here are preliminary it is possible that further analysis will lead both to modified themes to be found and different conclusions to be made. Especially the observational data is lacking in this preliminary analysis. At the later stage of the research effort the observations are intended to be analysed in order to connect the interviews to the wider context of workplace learning in one enterprise. The meanings of learning are better understood in seeing the context from which they are emerging. Accordingly, interviews will be further analysed and deepened adapting ethnographic and fenomenographic analysis. Questions to be taken into consideration in further analysis are, 1) how observations and interviews will be connected and 2) is it possible to examine the meanings produced in interviews as meanings of learning in general. Thus, the focus should be on what the interviews tell about planner's experiences, perceptions and interpretations and what the observations tell about the contexts in which learning is assumed to take place. Also the interviewees themselves should examine the first results and interpretations from the data in order to verify the interpretations of the researcher. Further, observations and interviews in another enterprise will be collected and compared with the data collected from the other enterprise.

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